

What is claimed is:

1. A composition for treating and/or preventing disease by an infectious agent in plants comprising an effective amount of at least one effective terpene.
2. The composition of claim 1 wherein the composition is a solution capable of being taken up by a plant.
3. The composition of claim 2 wherein the solution capable of being taken up by a plant is a true solution.
4. The composition of claim 1 further comprising water.
5. The composition of claim 1 further comprising a surfactant and water.
6. The composition of claim 5 wherein the surfactant is polysorbate 20, polysorbate 80, polysorbate 40, polysorbate 60, polyglyceryl ester, polyglyceryl monooleate, decaglyceryl monocaprylate, propylene glycol dicaprylate, triglycerol monostearate, TWBEN, SPAN 20, SPAN 40, SPAN 60, SPAN 80 or mixtures thereof.
7. The composition of claim 1 further comprising a stabilizer.
8. The composition of claim 1 wherein the at least one terpene is a mixture of different terpenes.
9. The composition of claim 1 wherein the at least one terpene is a terpene-liposome combination.
10. The composition of claim 1 wherein the terpene comprises citral, pinene, nerol, b-

0197904

ionone, geraniol, carvacrol, eugenol, carvone, terpeniol, anethole, camphor, menthol, limonene, nerolidol, farnesol, phytol, carotene (vitamin A₁), squalene, thymol, tocotrienol, perillyl alcohol, borneol, myrcene, simene, carene, terpenene, linalool, or mixtures thereof.

11. The composition of claim 1 wherein the terpene is citral, geraniol, thymol, or linalool.
12. The composition of claim 1 wherein composition comprises about 1 to 99% by volume terpenes and about 1 to 99% by volume surfactant.
13. The composition of claim 1 wherein the terpene comprises between about 20 ppm and about 5000 ppm.
14. The composition of claim 1 wherein the terpene comprises about 125 ppm.
15. The composition of claim 1 wherein the terpene comprises about 250 ppm.
16. The composition of claim 1 wherein the terpene comprises about 500 ppm.
17. The composition of claim 1 wherein the terpene is citral and the effective amount is 500 ppm.
18. The composition of claim 1 wherein the terpene is effective against bacteria, mycoplasmas/phytoplasmas, and/or fungi.
19. The composition of claim 1 wherein the terpene is effective against bacteria.
20. The composition of claim 1 wherein the terpene is effective against phytoplasmas.

#197904

46

PCT/US02/27512

21. A composition for treating and/or preventing disease by an infectious agent in plants comprising a true solution comprising an effective amount of at least one effective terpene and water.
22. A method for treating and/or preventing disease by an infectious agent in a plant comprising
administering a composition comprising an effective amount of an effective terpene to the plant.
23. The method of claim 22 wherein the composition further comprises water.
24. The method of claim 22 wherein the composition further comprises a surfactant.
25. The method of claim 22 wherein the administration is by spraying or watering the plants with the composition.
26. The method of claim 22 wherein the administration is by injecting plants with the composition.
27. The method of claim 26 wherein the injection comprises injecting the composition into the xylem of the plant.
28. The method of claim 22 further comprising making a composition comprising an effective amount of an effective terpene.
29. The method of claim 22 wherein the plants are grape vines, stone fruit trees, coffee, or ornamental plants.
30. The method of claim 22 wherein the plants are grapevines.

8197904

AMENDED SHEET

31. The method of claim 22 wherein the plants are infected with an infective agent.
32. The method of claim 31 wherein the infective agent is bacteria, mycoplasmas/phytoplasmas, and/or fungi.
33. The method of claim 31 wherein the infective agent is bacteria.
34. The method of claim 31 wherein infective agent is phytoplasma.
35. The method of claim 28 wherein the making a composition comprises mixing an effective amount of an effective terpene and water.
36. The method of claim 35 wherein the mixing is done at a solution-forming shear until formation of a true solution of the terpene and water.
37. The method of claim 36 wherein the terpene mixed is into a true solution in water without a surfactant by high shear or high pressure blending or agitation.
38. The method of claim 36 wherein the solution-forming shear mixing is via a static mixer.
39. A method for treating and/or preventing disease by an infectious agent in a plant comprising administering a composition comprising an effective amount of an effective terpene and water to the plant.
40. The method of claim 39 wherein the terpene is citral.
41. The method of claim 39 wherein the composition is a true solution.

0197904

48

PCT/US02/27512

42. A method for making a terpene-containing composition effective for treating and/or preventing disease by an infectious agent in a plant comprising mixing a composition comprising a terpene and water at a solution-forming shear until a true solution of the terpene is formed.

43. A method for making a terpene-containing composition capable of plant root uptake and effective for treating and/or preventing disease by an infectious agent in a plant infections comprising adding terpene to water, and mixing the terpene and water under solution-forming shear conditions until a true solution of terpene and water forms.

44. A method for making the composition of claim 1 comprising mixing a terpene with a carrier.

45. A method for using the composition of claim 1 comprising administering the composition of claim 1 to infected plants.

6197904

AMENDED SHEET